

## ABSTRACT

A method of forming a copper interconnect in an opening within a pattern is described. The copper interconnect has an  $R_s$  that is nearly independent of opening width and pattern density. A first copper layer having a concave upper surface and thickness  $t_1$  is formed in a via or trench in a dielectric layer by depositing copper and performing a first CMP step. A second copper layer with a thickness  $t_2$  where  $t_2 \leq t_1$  and having a convex lower surface is deposited on the first copper layer by a selective electroplating method. The first and second copper layers are annealed and then a second CMP step planarizes the second copper layer to become coplanar with the dielectric layer. The invention is also a copper interconnect comprised of the aforementioned copper layers where the first copper layer has a grain density ( $G_{D1}$ )  $\geq G_{D2}$  for the second copper layer.